B. HYMENOPTERA.

III. *On a new Joppine (Ichneumonidae) Genus and Species bred from a Lycaenid Larva in Southern Nigeria.*

By James Waterston, B.D., D.Sc., Assistant in the Department of Entomology, British Museum, Natural History.

Text Figures 2, 3.

The single Ichneumonid in Mr. Farquharson's collection, though represented by only one example with defective antennae, has proved to be of great interest. A prolonged study of this specimen convinced me that it must be assigned to the Joppinae, and further that it was referable to no described genus. At my request Dr. A. Roman of Stockholm examined the insect, and his opinion as to its systematic position agrees with that just expressed. For this kindness and further for drawing my attention to the importance of the host attachment (*vide infra*) of this new genus I desire to express my hearty thanks.

The genus *Adelotropis* (*ἄδηλος*, *τρόπις*) is easily recognised by antennal and neurational characters and the genotype in all probability by colour and puncturation.

Fam. ICHNEUMONIDAE.
Sub-fam. Joppinae.

Adelotropis, gen. nov.

Head as wide as thorax. Frons smooth, without carina between the antennae. Face medianly raised, the swelling defined with moderate sharpness just below the toruli and fading out towards the clypeus. The latter not separated from the face medianly but shallowly at the sides (towards the ends of the tentorial apodemes). Inner orbits a little divergent towards the mouth edge. Occiput and genae smooth. The latter slightly swollen posteriorly so that in profile the genae are not margined. The occipital margin, fine but distinct and thinning out ventrally, reaches the mouth edge as a delicate line perceptible only from behind. The first normal funicular joint (post annellus) shorter than the second which is longer also than its successors. Thorax robust; notauli shallow and indistinct; scutellum deeply separated from scutum and bluntly, conically, elevated with a broad raised flange which is apically defective. Propodeon dorsally short, deeply separated

from postscutellum, its areae almost completely but in places indistinctly indicated. Spiracles rather narrow. Wings. The outermost (3rd) abscissa of the radius is straight and the 2nd recurrent broken just below ½ and with a rudimentary external branch. In the hind-wings the nervellus is very slightly antefurcal and broken at its lower extremity. The discoidella emitted here and the posterior beyond this point are spurious.

Abdomen, 2nd segment with pronounced punctate striate sculpture; gastrocoeli large. Hind-legs, especially the femora, robust, tarsal ungues strong, simple.

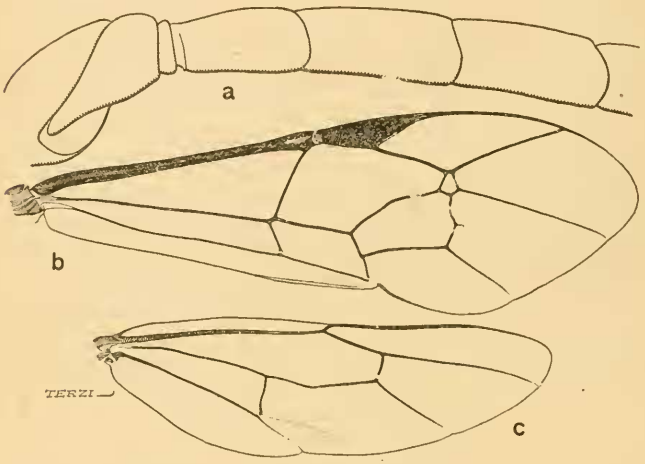

Fig. 2. *Adelotropis farquharsoni*, sp. n., (*a*) Basal joints of antenna, (*b*, *c*) Wings.

In its genal characters this genus closely resembles *Joppa* F., but its affinities on the whole are with the genera *Anisobas* Wesm., *Listrodromus* Wesm., and *Neotypus* Först., particularly with the latter. A further indication of the relationship of these four groups is to be found in their host attachment—all of them parasitising Lycaenids.

Genotype the following.

Adelotropis farquharsoni, sp. n.

♀. Head and antennae, up to the 8th normal funicular joint, blackish brown except for one large pale spot at the base of the mandible, a second along the inner orbit of the eye extending

upwards to the level of the anterior ocellus and inwardly to the edge of the torulus and a third narrow and indistinct along the posterior orbit on its upper $\frac{1}{3}$. Thorax dark ferruginous, propodeon more infuscated especially antero-dorsally. Legs and abdomen blackish brown, the fore and hind tarsi slightly paler. Apex of

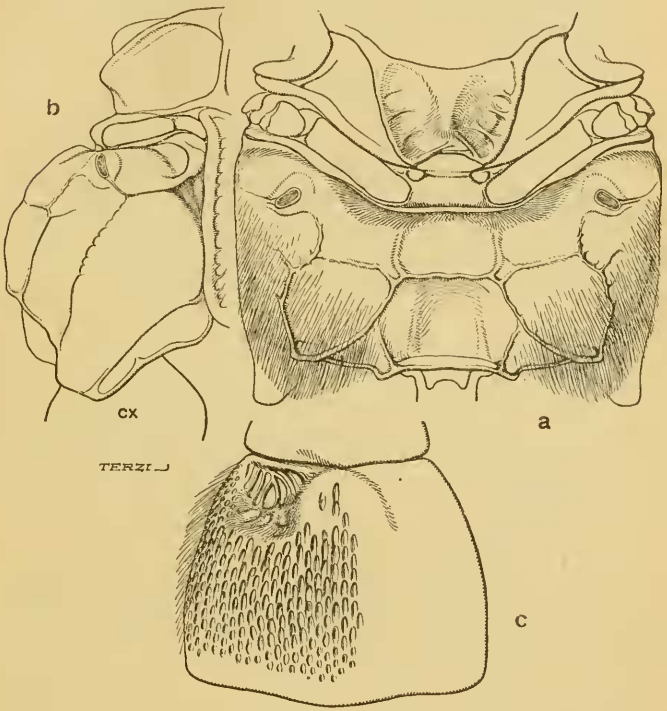

Fig. 3. *Adelotropis farquharsoni*, sp. n. (*a*) Propodeon from above, (*b*) Propodeon in profile, to show the areae. The puncturation is not expressed. (*c*) Post petiole and succeeding tergite, to show puncturation of the latter. (*cx*) Coxa.

hind coxae and hind tibial spurs pale. The abdominal tergites from 4 onwards broadly yellowish white apically, as is also the upper half of the sheath of the terebra.

Head, occiput to genae shining with only a few scattered punctures behind the ocelli; vertex with a few punctures (minute) anteriorly at the sides of the ocellar triangle. Frons smooth and finely and sparsely punctate at the sides on the pale spots. Face and clypeus dull, closely and finely punctate.

Thorax. Mesonotum (including scutellum) with rather large coarse sparse but even puncturation. Mesosternopleurae more closely punctate; upper part of furrow smooth: posteriorly before the epimeron, it is crenulate. Metapleurae deeply sunk. Propodeon. With care all the areae can be made out but the best-defined keels are those bounding the dentiparal area which postero-laterally bears a low inconspicuous tooth best seen from above (fig. 3*a*). Fairly distinct too are the keels above and below the pleural area (fig. 3*b*).

Basal area and areola confluent and nearly merged with the external areae. The dorsal surface of the propodeon within these areae shining and smooth but irregular, such punctures as are present being near the sides of the areae. Juxta-coxal, pleural, spiracular and posterior areae dull, with coarse close puncturation. Particularly at the sides and posteriorly (*i. e.* over the punctured surfaces) the propodeon is clothed with a dense whitish pubescence.

Wings (see fig. 2*bc*). About 10 hooks on the costa of the hind-wings.

Legs. Hind coxae externally coarsely and closely, the hind femora more finely, punctured.

Abdomen. Petiole smooth shining expanding distally to the wide post petiole. The latter intumescent between and round the small broadly oval spiracles. On the petiole itself are a few elongate punctures deeper anteriorly than posteriorly: apically the punctures become more numerous and coarser especially beyond the spiracles at the sides.

The 2nd (3rd) segment (fig. 3*c*) has a deep coarse puncturation, the punctures for the most part drawn out and deeper anteriorly so that the surface has a sub-aciculate appearance. The 3rd (4th) tergite is similar to the second and also basally crenulate. The remainder of the dorsal surface is smooth.

Length, about 8 mm.

Alar expanse, about 14 mm.

One ♀ bred March 22, 1917, from the larva of a Lycaenid, probably *Deudorix diyllus* Hew., feeding on the flowers of *Pterocarpus esculenta*, at Moor Plantation, near Ibadan, S. Nigeria (p. 382).

IV. *On Chalcid Parasites bred from Pupae of Teratoneura isabellae.* By James Waterston, B.D., D.Sc.

[In a letter of Oct. 18, 1917, Farquharson spoke of sending "two *Teratoneura* pupae from which Chalcids of two kinds emerged. I have more in reserve." (See also his notes on pp. 346–47.) Of the pupae sent, one, A, had yielded, on March 5, 1917, 245 minute Chalcids; from the other, B, found Feb. 21, 1917, a single large female, identified by Dr. J. Waterston as *Chalcis* ? *leighi*, emerged March 2. The material in reserve arrived later and consisted of 152 minute Chalcids, which emerged Feb. 20, 1917, from a pupa, C, which was not received. These 152 examples were larger than those from pupa A, but considered by Dr. Waterston to belong to the same species *Tetrastichus balteatus*. That the 245 should be smaller than the 152 was to be expected, but that the proportion of males in the larger number should be so much higher (2 to 5 as against 2 to 17) suggests further inquiries which may lead to conclusions of much interest. Dr. Waterston has kindly written (Sept. 18, 1919, and Feb. 29, 1920) the following account.—E.B.P.]

re *Chalcids from* Teratoneura.

There are in this material two species :—

(*a*) *Eulophidae*—Genus *Tetrastichus*.

Tetrastichus balteatus Waterst. (Bull. Ent. Res. VI, Pt. III, Dec. 1915, p. 241, figs. 4, 6).

Of this species there are [altogether from pupae A and C] 86 ♂ and 311 ♀ (*i. e.* 21·66 % of the total—397) which agree well with the type material bred from the pupa of a Lymantriid moth, Port Herald, Nyasaland. There are some slight differences in the proportion of the funicular joints (♂) which do not appear to be of specific value.

I cannot discover that more than one species is represented. The difference in size which struck you is partly sexual, the female being on the average considerably larger than the male, partly also I believe a matter of nutrition. Sorting the material roughly by size there are two lots of

larger and smaller examples respectively. These lots analyse as follows :—

	Mounts.	♂	♀	
Larger examples .	12 "C"	16	136	*i. e.* 2 ♂ to 17 ♀
Smaller examples .	12 "A"	70	175	*i. e.* 2 ♂ to 5 ♀
Totals . . .		86	311	

I take it that "C" and "A" refer to separate pupae of *Teratoneura*. If so the difference in size is apparently due to the fact that in the A lot not only was the parasitism heavier but the ratio of males to females over three times higher.

(*b*) *Chalcididae*—Genus *Chalcis*.

Chalcis ? *leighi* Cam. (Ann. S. Afr. Mus., vol. v, 1907, p. 210). One ♀ from pupa B.

Cameron's species rests on the unique and imperfect type in the B. M., and a complete comparison has not been possible. In your example the puncturation of the hind femora is hardly so heavy, nor is the base of the hind tibia so pale above as in the Natal insect. But the two are extremely close if not identical, as I incline to think they will prove to be.